

**Notice of Allowability**

Application No.

10/722,985

Examiner

Jeffrie R. Lund

Applicant(s)

BOUCHAIB ET AL.

Art Unit

1763

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed 4/4/05.
2. ☒ The allowed claim(s) is/are 1-9.
3. ☒ The drawings filed on 04 April 2005 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All   b) ☐ Some\*   c) ☒ None   of the:
  1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date 1/04
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

### EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

The application has been amended as follows:

The abstract has been amended as follows:

Epitaxy equipment including an epitaxy chamber under vacuum containing a substrate support and at least one cell under vacuum for evaporation of epitaxy material closed by a diaphragm having at least one opening and communicating with the epitaxy chamber by a connecting flange, and a mobile plate positioned opposite the diaphragm such that the distance of the plate from an exterior surface of the diaphragm is variable and has a cross section corresponding to a cross section of the diaphragm and a molecular beam is formed at the level of a zone surrounding the plate.

The Specification has been amended to read:

[0022] The invention provides equipment making it possible to adjust the characteristics of the beam during its use. For this purpose, the invention pertains in its broadest sense to epitaxy equipment comprising an epitaxy chamber under vacuum containing a substrate support and at least one cell under vacuum for the evaporation of the epitaxy material closed by a diaphragm having openings and communicating with the epitaxy chamber by a connecting flange, characterized in that it comprises a mobile plate the cross section of which corresponds to the cross section of the diaphragm and

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which is positioned opposite ~~perforated~~ the diaphragm.

[0025] The plate preferably has a cross section corresponding to the cross section of the diaphragm. In a first variant, the plate is mobile in a direction perpendicular to the diaphragm. The course of the plate is advantageously 10 millimeters.

[0028] According to a particular mode of implementation, the plate is actuated by a ~~connecting organ~~ control rod traversing the wall of the epitaxy chamber via an airtight passage.

[0033] It has a disc-shaped plate (3) positioned parallel to the plane of the diaphragm. It is made of metal and has a cross section of 20 mm, corresponding essentially to the cross section of the source (11).

2. The following is an examiner's statement of reasons for allowance: The epitaxy equipment as claimed in claims 1 and 5, specifically:

- a. In claim 1 the mobile plate positioned opposite the diaphragm such that the distance of the plate from an exterior surface of the diaphragm is variable and has a cross section corresponding to a cross section of the diaphragm and a molecular beam is formed at a level of a zone surrounding the plate was not found in or suggested by the art.

The closest art for the epitaxy equipment of claim 1 is the shutters of the prior art, such as Parmenter et al, US Patent 5,026,454, or Poole US Patent 5,976,263. These are positioned above the cell and either rotate or slide away from the opening of the cell. This differs from the present invention in that the

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distance of the plate from the exterior surface of the diaphragm is constant, and the molecular beam is not formed at a level of a zone surrounding the plate but at the opening of the cell.

b. In claim 5 the angularly mobile plate positioned opposite the diaphragm such that the plate forms a dihedral variable with a plane of the diaphragm, the distance of a center of the plate from an exterior surface of the diaphragm being variable, the plate having a cross section corresponding to a cross section of the diaphragm, and a molecular beam being formed at a level of a zone surrounding the plate was not found in or suggest by the art.

The closest art for the epitaxy equipment of claim 5 is the patent family of Kelson et al, US Patent 6,342,265 B1. These patents teach a shield 4 that forms a dihedral with the opening of a protective housing 2. However, Kelson et al is directed to protecting a solid-state alpha radiation sensor, and does not address any of the additional structure of claim 5, such as substrate support, cell, diaphragm, connecting flange, the cross section size, or the location of the molecular beam. No suggestion or motivation was found to attach this shield to a cell in an epitaxy chamber or add any of the other claimed structure.

The Examiner has carefully reviewed the amendments to the specification and figure 5, and agrees with the Applicant that the amendments and figure are fully supported by the drawings, specification, and claims as originally filed, and no new matter has been added.

Any comments considered necessary by applicant must be submitted no later

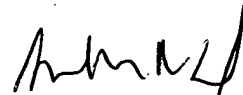
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than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrie R. Lund whose telephone number is (571) 272-1437. The examiner can normally be reached on Monday-Thursday (6:30 am-6:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on (571) 272-1435. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Jeffrie R. Lund  
Primary Examiner  
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JRL  
6/18/05